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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/783,167

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Wade D. Vinson

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EXAMINER

LE, DANG D

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 12/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/783,167

Applicant(s)

VINSON ET AL.

Examiner

Dang D. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/28/05 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Response to Arguments***

1. Applicant's arguments filed 9/28/05 have been fully considered but they are not persuasive.

In response to the applicant's argument of drawing objection, the drawings do not show the diameters of the bearing and the relationship between the inner and outer diameters like the diameters DI and DH in Figure 6. As a result, the drawing objection is still deemed proper and repeated hereinafter.

In response to the applicant's argument of claim rejection under 35 U.S.C. 112, second paragraph, where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "electrical isolated" in claims 13 and 18 is used by the claim to mean "being connected by a resistor", while the accepted meaning is "there is no connection between two circuits." The term is indefinite because if the first electrical ground and second electrical ground are connected together, there will be a continuity in the circuit. There must be a voltage drop between the first electrical ground (158) and second electrical ground (160) across the resistor (162) and the current can flow from (160) to I/O terminals (140) if the current does not

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flow from 158 toward 160. Therefore, the rejection is still deemed proper and repeated hereinafter.

In response to the applicant's argument of "the word 'ground' or its equivalent cannot be found in Sunaga et al. reference." It is noted that Sunaga et al. describes the ground terminals in column 15, lines 10-35 and lines 40-55 and from line 65 to column 16, line 10. Sunaga et al. teaches to form the drive circuit and the control circuit on separate substrates, which are arranged at different locations. See Figures 1 and 18. There must be electrical ground for every circuit in order for the circuit to function. Because the drive circuit and the control circuit are formed on separate substrates, the electrical grounds must also be formed on these substrates.

It is noted that claims 1 and 13 are open-ended claims and they do not exclude the fact that the electrical grounds on the printed circuit boards are not grounded to the same housing or earth. For example, if claim 18 further recites that the electrical grounds are connected by a resistor, the open-ended claims could further include the fact that the electrical grounds are connected to the same housing or earth or even together.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

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reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to do so is for the purpose of having less bulky coil ends.

As a result, the rejections are still deemed proper and repeated hereinafter.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the outer diameter and the inner diameter and the relationship between the diameters in claim 21 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

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and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 13 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claims 13 and 18, it is not clear how the ground planes are electrically isolated by a resistor. If the ground planes are connected by a resistor, they are not electrically isolated because there is a continuity in the circuit.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Sunaga et al. (6,297,572).

Regarding claim 13, Sunaga et al. shows a cooling fan (Figure 1), comprising:

- An impeller (10);
- A three-phase DC motor, comprising:
  - A rotor (7) mechanically coupled to the impeller;
  - A stator (5, 6) operable to induce rotation of the rotor;
- A circuit board (33) comprising a first electrical ground and a second electrical ground electrically isolated from the first electrical ground;
- A plurality of switching devices (40) electrically coupled to the stator, wherein the plurality of switching devices are grounded via the first electrical ground; and
- A processor (31) operable to control the plurality of switching devices, wherein the processor is grounded via the second electrical ground (inherently, otherwise the circuit is burned).

Regarding claims 14-17, it is noted that Sunaga et al. also shows all of the limitations of the claimed invention including a starting circuit (43) operable to slow start the three-phase DC motor.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 2, 4, 5, and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Papa et al. (6,175,490) in view of von der Heide et al. (Re. 36,168) and further in view of Sunaga et al. (6,617,719).

Regarding claim 1, Papa et al. shows an electronic device (Figure 6), comprising:

- A redundant, hot-plug cooling fan (566A, 566B) operable to induce a flow of air through the electronic device, the cooling fan comprising:
  - a fan impeller (Figure 6).

Papa et al. does not show a three-phase DC motor coupled to the fan impeller and the three-phase DC motor comprising a circuit board having a first ground plane and a second ground plane.

Von der Heide et al. shows a three-phase DC motor (Figure 2) coupled to the fan impeller (141) for the purpose of having less bulky coil ends.



Sunaga et al. shows a DC motor comprising a circuit board (30) having a first ground plane (for drive circuit 31) and a second ground plane (for control circuit 41) for the purpose of controlling the operation of the motor.

Since Papa et al., von der Heide et al., and Sunaga et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to couple a three-phase DC motor to the fan impeller as taught by von der Heide et al. for the purpose discussed above.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include a printed circuit board with first and second ground planes as taught by Sunaga et al. for the purpose discussed above.

Regarding claims 2, 11, and 12, it is noted that von der Heide et al. also shows the three-phase DC motor comprising: a rotor (17B) coupled to the fan impeller; and a stator (10) operable to receive three-phase DC power and produce a magnetic field to induce rotation in the rotor.

Regarding claims 4, 5, and 8-10, it is noted that Papa et al., von der Heide et al., and Sunaga et al. also shows all of the limitations of the claimed invention.

10. Claims 1, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Papa et al. (6,175,490) in view of Patyk et al. (5,939,807).

Regarding claims 1, 6 and 7, Papa et al. shows an electronic device (Figure 6), comprising:

- A redundant, hot-plug cooling fan (566A, 566B) operable to induce a flow of air through the electronic device, the cooling fan comprising:
- A fan impeller (Figure 6).

Papa et al. does not show a three-phase DC motor coupled to the fan impeller and the three-phase DC motor comprising a circuit board having a first ground plane and a second ground plane and the first and second ground plane being “electrically isolated” (Figure 9, resistor in 175B), and relative laterally displacement (due to the use of a single circuit board 76).

Patyk et al. shows a three-phase DC motor (Figure 9) coupled to the fan impeller the DC motor comprising a circuit board (76) having a first ground plane (below 156, for drive circuit 140) and a second ground plane (175B, for control circuit) and the first and second ground plane being “electrically isolated” (Figure 9, resistor in 175B), and relative laterally displacement (due to the use of a single circuit board 76) for the purpose of reducing size.

Since Papa et al. and Patyk et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to couple a three-phase DC motor to the fan impeller and to include a printed circuit board with first and second ground planes as taught by Patyk et al. for the purpose discussed above.

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11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sunaga et al. in view of Patyk et al. (5,939,807).

Regarding claim 18, Sunaga et al. shows all of the limitations of the claimed invention except for the second ground plane being electrically isolated from the first ground plane by a resistor.

Patyk et al. shows the second ground plane being electrically isolated from the first ground plane by a resistor (Figure 9) for the purpose of limiting current flow.

Since Sunaga et al. and Patyk et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to isolate the second ground plane electrically from the first ground plane by a resistor as taught by Patyk et al. for the purpose discussed above.

12. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sunaga et al. in view of Petersen (5,874,796).

Regarding claims 19 and 20, Sunaga et al. shows all of the limitations of the claimed invention except for the rare earth magnet comprising bonded neodymium-iron-boron.

Petersen shows the rare earth magnet comprising bonded neodymium-iron-boron for the purpose of increasing magnetic flux density.

Since Sunaga et al. and Petersen are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the rare earth magnet comprising bonded neodymium-iron-boron as taught by Petersen for the purpose discussed above.

Regarding claim 21, Sunaga et al. shows all of the limitations of the claimed invention except for each bearing in the bearing assembly having an outer diameter that is more than three times the inner diameter of the bearing. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set each bearing in the bearing assembly with an outer diameter that is more than three times the inner diameter of the bearing since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Information on How to Contact USPTO***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D. Le whose telephone number is (571) 272-2027. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**DANG LE**  
**PRIMARY EXAMINER**

12/4/05